

What is claimed is:

1. A semiconductor device on which a plurality of semiconductor elements each having first and second main electrodes and a control electrode are arranged,
5 comprising:

a semiconductor substrate having one principal plane on which the first and second main electrodes and the control electrode are formed;

10 a film which is formed over the first main electrode and the control electrode so as to insulate the first main electrode and the control electrode from the second main electrode, and is made of polymer material with a low dielectric constant; and

15 a chip surface electrode formed over the film and the second main electrode and connected to a ground potential,

wherein the second main electrode is provided with the ground potential through the chip surface
20 electrode.

2. A semiconductor device according to claim 1, wherein a first pad connected to the first electrode and a second pad connected to the second electrode are formed on
25 a principal plane on the opposite side of the principal

plane on which the electrodes of the semiconductor substrate are formed.

3. A semiconductor device according to claim 1,
5 wherein the semiconductor substrate is made from SiC or sapphire.

4. A semiconductor device on which a plurality of semiconductor elements each having first and second main
10 electrodes and a control electrode are formed, comprising:

a semiconductor substrate having one principal plane on which the first and second main electrodes and the control electrodes are formed; and

a protecting film formed over the first and
15 second main electrodes and the control electrodes, and made of polymer material with a low dielectric constant.

5. A semiconductor device on which a plurality of semiconductor elements each having first and second main
20 electrodes and a control electrode are formed, comprising:

a semiconductor substrate having one principal plane on which the first and second main electrodes and the control electrodes are formed;

a metal layer which is formed on a principal
25 plane on the opposite side of the principal plane of the

semiconductor substrate and which is grounded;

a film formed over the first and second main electrodes and the control electrodes and made of polymer material with a low dielectric constant; and

5 a surface layer which is formed on the film made of polymer material with a low dielectric constant and which is made of the same material as that of the grounded metal layer.

10 6. A semiconductor device according to claim 5, wherein the surface layer is electrically connected to the grounded metal layer.